

IN THE CLAIMS

1-11. (Canceled)

12. (Currently Amended) ~~A System~~ system for measuring the refractive index of at least one medium, comprising:

a waveguide comprising at least one transducer formed by a blazed Bragg grating, in a part of the waveguide brought into contact with ~~the~~ a medium, wherein the spectral response of the blazed Bragg grating depends on the refractive index of the medium by means of energy coupling between the guided mode and cladding modes and/or a continuum of radiative modes[[,]];

a light source optically coupled to the waveguide in order to direct ~~this~~ light therein and to make [[it]] the light interact with the grating[[,]];

spectral analysis means ~~provided to analyse~~ for analyzing the light which has interacted with the blazed Bragg grating and ~~to provide~~ for providing a spectrum corresponding to ~~this~~ the grating[[,]];

acquisition means ~~provided to~~ for recover recovering ~~this~~ the spectrum[[,]]; and

electronic processing means ~~provided to~~ for correlate determining, from the spectrum thus recovered, ~~the spectral response of the blazed Bragg grating with~~ a value of the refractive index of the medium ~~and to provide this value~~.

13. (Currently Amended) ~~The System~~ system according to Claim 12, ~~in which~~ wherein the electronic processing means ~~are provided in order to determine the~~ includes means for determining lower and upper envelope curves of the normalized recovered spectrum and ~~the~~ a normalized area between ~~these two~~ the lower and upper envelope curves.

14. (Currently Amended) The System ~~system~~ according to Claim 12, ~~in which~~ wherein the waveguide comprises a single blazed Bragg grating.

15. (Currently Amended) The System ~~system~~ according of Claim 12, ~~in which~~ wherein the waveguide comprises a plurality of blazed Bragg gratings, the spectral analysis means ~~are provided in order to analyse~~ analyzes the light ~~which that~~ has interacted with the gratings and to provide the spectra corresponding respectively to ~~these~~ the gratings, the acquisition means are provided in order to demultiplex, in an optical or digital manner, the spectra thus provided and to discriminate the respective spectral responses of the gratings, and the electronic processing means are provided in order to correlate the spectral response of each grating with the value of the refractive index of the medium corresponding to ~~this~~ the grating.

16. (Currently Amended) The System ~~system~~ according to Claim 12, ~~in which~~ wherein the light source is a broad spectrum source.

17. (Currently Amended) The System ~~system~~ according to Claim 14, ~~in which~~ wherein the light source is a narrow spectrum source, the wavelength of which can be tuned, and the spectral analysis means comprise a photodetector.

18. (Currently Amended) The System ~~system~~ according Claim 12, ~~in which~~ wherein the light source is optically coupled to a first end of the waveguide and the spectral analysis means are optically coupled to a second end of this waveguide, for the purpose of measuring the refractive index by transmission.

19. (Currently Amended) The System system according Claim 12, ~~in which~~ wherein the light source and the spectral analysis means are optically coupled to a first end of the waveguide, and means of reflecting the light are provided at the second end of the waveguide, for the purpose of measuring the refractive index by reflection.

20. (Currently Amended) The System system according to Claim 12, ~~in which~~ wherein the acquisition and spectral analysis means are provided in order to acquire each spectrum, with as small a wavelength pitch as allowed by the spectral analysis ~~technique~~ means.

21. (Currently Amended) The System system according Claim 12, ~~in which~~ wherein the waveguide is an optical fibre.

22. (Currently Amended) The System system according Claim 12, ~~in which~~ wherein the waveguide is a planar waveguide.